

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

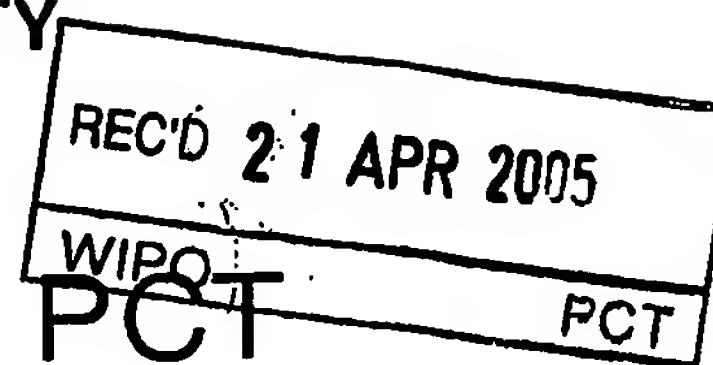
Applicant's or agent's file reference P3190 WO ORD	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/GB2004/005442	International filing date ( <i>day/month/year</i> ) 20 December 2004 (20.12.2004)	Priority date ( <i>day/month/year</i> ) 19 December 2003 (19.12.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant ELECTROKINETIC LIMITED		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	<p>This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input checked="" type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

<p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 740 14 35</p>	<p>Date of issuance of this report 20 June 2006 (20.06.2006)</p> <p>Authorized officer  <b>Dorothee Mülhausen</b></p> <p>Telephone No. +41 22 338 87 40</p>
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/005442

International filing date (day/month/year)  
21.12.2004

Priority date (day/month/year)  
19.12.2003

International Patent Classification (IPC) or both national classification and IPC  
B01D61/56, B01D35/06, C02F1/469

Applicant  
ELECTROKINETIC LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office  
D-80298 Munich  
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Telephone No. +49 89 2399-7343



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/005442

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/005442

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	13,16,17,19
	No: Claims	1-12,14,15,18
Inventive step (IS)	Yes: Claims	
	No: Claims	1-19
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Box No. VI Certain documents cited**

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**1. Certain published documents (Rules 43bis.1 and 70.10)**

**and / or**

**2. Non-written disclosures (Rules 43bis.1 and 70.9)**

**see form 210**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item V.**

**1 Reference is made to the following documents:**

- D1 : US 2003/150789 A1 (MILLER SARAH A ET AL) 14 August 2003 (2003-08-14)  
D2 : GB 2 327 686 A (\* NETLON LIMITED) 3 February 1999 (1999-02-03)  
D3 : WO 91/01392 A (IONEX; LOMASNEY, HENRY, L; GRAVES, RICHARD) 7 February 1991 (1991-02-07)  
D4 : WO 00/39405 A (UNIVERSITY OF NEWCASTLE; PUGH, ROBERT, COLIN; JONES, COLIN, JOHN, FRAN) 6 July 2000 (2000-07-06)

**2 Novelty**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1-12, 14, 15 and 18** is not new in the sense of Article 33(2) PCT.

- 2.1 Document D1 discloses (the references in parentheses applying to this document) an apparatus and method for dewatering wastes by means of filtration and electro osmose (electrokinetic effect). A belt (10) with insulated electrode patterns (21) comprising e.g. carbon/ stainless steel impregnated polyester or conductive synthetics (§[0035]) is driven in direct contact to a filter material 16 through a receiving zone. The conductive threads could also be directly integrated in the belt weave (§[0043]). The water is electro kinetically withdrawn by a drainage means (14) which includes the cathodic potential (§[0034]).

This apparatus is suitable to also dewater dispersions or suspensions according to the subject matter of claim 2.

Thus the subject matter of **claims 1, 2, 4-9, 15, 18** does not fulfil the requirements of Article 33(2) PCT.

- 2.2 Document D2 discloses an electrode element comprising an extruded plastic weave (2,3,4) and parallel wire strands used to drain water from a feed solution (p.1, ll 6-17). A filter fabric is wrapped around this structure. Although being used for the dewatering of solids the respective apparatus (regarded to be a geosynthetic material, cf. item VIII I) is suitable for in situ application in suspensions as well.

Thus the subject matter of **claims 1, 2 and 4-12** does not fulfil the requirements of Article 33(2) PCT.

- 2.3 Document D4 discloses an apparatus comprising electrodes (9 and 1) made of EKG structures. Although being used for the dewatering of solids the respective apparatus is suitable for in situ application in suspensions as well (cl.16,17 and fig.3).

Thus the subject matter of **claims 1-12 and 14** does not fulfil the requirements of Article 33(2) PCT.

**3 Inventive step**

The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of **claims 13, 16, 17 and 19** does not involve an inventive step in the sense of Article 33(3)PCT for the following reasons:

- 3.1 The subject-matter of **claim 13** differs from the disclosure of D1 in that one of the conducting elements comprises a metal oxide coating. This however is a common means in the field of electrochemical processing for corrosion prevention as can be derived from D3 (p.24, last § - p.25, §1 and cl.47).
- 3.2 Non of the features disclosed in **claims 16, 17 and 19** presently seems to be a basis for an inventive step.

**Re Item VI.**

**Certain published documents**

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO2004/007045	22.01.04	15.07.03	15.07.02

The subject matter of this document may become relevant with respect to novelty in regional phases, cf. especially fig. 1-6 and 18. The use of geotextile electrodes for dewatering of solutions and suspensions is disclosed herein.

**Re Item VIII.**

- I The definition "geosynthetic material" is unclear as being vague. It is regarded to be a set of materials suitable to improve the performance of grounds of foundation in geotechnical engineering (functional definition). However the term as such does not imply technical features. Thus the essential features of this material have to be defined in the claims as well.
- ii The subject matter of **claim 2** does not disclose a technical feature of the apparatus.
- iii The term "drain" in **claim 4** is not clear. No specific draining means as channels or pipes are disclosed in the application. That water entering the structure must be drained thereof as well is implicit. The term is thus interpreted in the sense of "water permeable structure".